CLAIMS

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1. A method of decoding a communications signal in a digital communications system, where the communications signal is modulated according to a modulation scheme including amplitude information; the method comprising
   - generating (406; 506; 707) a likelihood value for a received communications signal;
   - decoding (408; 508; 708) the communications signal based on at least the generated likelihood value;

characterised in

   - that the method further comprises providing (302; 702, 703) a reliability indication of the amplitude information conveyed by the received communications signal; and
   - that the step of generating the likelihood value further comprises generating (704) the likelihood value on the basis of the provided reliability indication of the amplitude information.

2. A method according to claim 1, characterised in that the method further comprises receiving the communications signal by a receiver module, and that the reliability indication is provided by the receiver module.

3. A method according to claim 2, characterised in that the step of receiving the communications signal further comprises scaling the communications signal by an amplifier; and the step of providing the reliability indication comprises generating the reliability indication on the basis of a gain setting of said amplifier.

4. A method according to any one of claims 1 through 3, characterised in that the step of generating the likelihood value on the basis of the provided reliability indication comprises determining (702) whether an amplitude change by a predetermined magnitude has occurred within a predetermined time period.

5. A method according to claim 4, characterised in that the predetermined time period corresponds to a time slot for communicating a bit sequence.

5   6. A method according to any one of claims 1 through 5, characterised in that the step of generating the likelihood value on the basis of the provided reliability indication of the amplitude information further comprises adjusting (704) the likelihood value to a value corresponding to higher uncertainty of a predetermined bit value if an amplitude change has occurred and if said bit

10   value is encoded using amplitude information.

7. A method according to claim 6, characterised in that the modulation scheme is 16-QAM wherein each signal symbol comprises four bits and where two predetermined bits of said four bits depend on amplitude

15   information; and the method comprises adjusting the likelihood values of said two predetermined bits to a value corresponding to higher uncertainty, if a change in amplitude is detected during the time slot for communicating said four bit sequence.

20   8. A method according to any one of claims 1 through 7, characterised in that the method further comprises rejecting (705) all received signal symbols received within a time interval comprising a predetermined number of consecutive slots, if a change in amplitude by a predetermined magnitude is detected in more than a predetermined fraction of slots of said number of

25   consecutive slots.

9. A method according to any one of claims 1 through 8, characterised in that the communications signal is modulated according to a quadrature amplitude modulation scheme.

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10. A method according to any one of claims 1 through 9, characterised in that the communications signal is a communications signal of a High Speed Downlink Packet Access of a 3GPP Wideband Code Division Multiple Access.

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11. An arrangement for decoding a communications signal in a digital
communications system, where the communications signal is modulated
according to a modulation scheme including amplitude information; the
arrangement comprising

5   -   processing means (303; 406; 506) adapted to generate a likelihood value
           for a received communications signal;
       -   a decoder (304; 408; 508) for decoding the communications signal based
           on at least the generated likelihood value;

10   characterised in

       -   that the arrangement further comprises means (302) for providing a
           reliability indication of the amplitude information conveyed by the received,
           communications signal; and
15   -   that the processing means is further adapted to generate the likelihood
           value on the basis of the provided reliability indication of the amplitude
           information.

12. An arrangement according to claim 11, characterised in that the
20   arrangement further comprises a receiver module for receiving the
       communications signal, the receiver module being adapted to provide the
       reliability indication.

13. An arrangement according to claim 12, characterised in that the
25   arrangement further comprises an amplifier for scaling the received
       communications signal; and that the receiver module is further adapted to
       generate the reliability indication on the basis of a gain setting of said
       amplifier.

30   14. An arrangement according to any one of claims 11 through 13,
       characterised in that the processing means is further adapted to determine
       whether an amplitude change by a predetermined magnitude has occurred
       within a predetermined time period.

15. An arrangement according to claim 14, characterised in that the predetermined time period corresponds to a time slot for communicating a bit sequence.

5   16. An arrangement according to any one of claims 11 through 15, characterised in that the processing means is further adapted to adjust the likelihood value to a value corresponding to higher uncertainty of a predetermined bit value if an amplitude change has occurred and if said bit value is encoded using amplitude information.

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17. An arrangement according to claim 16, characterised in that the modulation scheme is 16-QAM wherein each signal symbol comprises four bits and where two predetermined bits of said four bits depend on amplitude information; and the processing means is further adapted to adjust the

15   likelihood values of said two predetermined bits to a value corresponding to higher uncertainty, if a change in amplitude is detected during the time slot for communicating said four bit sequence.

18. An arrangement according to any one of claims 11 through 17,

20   characterised in that the processing means is further adapted to reject all received signal symbols received within a time interval comprising a predetermined number of consecutive slots, if a change in amplitude by a predetermined magnitude is detected in more than a predetermined fraction of slots of said number of consecutive slots.

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19. An arrangement according to any one of claims 11 through 18, characterised in that the communications signal is modulated according to a quadrature amplitude modulation scheme.

30   20.   An arrangement according to any one of claims 11 through 19, characterised in that the communications signal is a communications signal of a High Speed Downlink Packet Access of a 3GPP Wideband Code Division Multiple Access.

35   21. An arrangement according to any one of claims 11 through 20, characterised in

that the arrangement comprises

- a receiver (402) for receiving a communication signal;
- an amplifier (403) for scaling the received communications signal according to a predetermined amplifier gain;
- a gain control module (410) for controlling the amplifier gain according to a received signal strength, the gain control module being adapted to feed a gain control signal to the amplifier; and
- a control unit (302) for generating amplitude information (411), the control unit being adapted to receive the gain control signal from the gain control unit and to generate an amplitude information signal; and

that the processing means is adapted to receive the amplitude information signal from the control unit.

22. An arrangement according to any one of claims 11 through 21, characterized in that the digital communications system is a cellular communications system.

23. An arrangement according to claim 22, characterized in that the arrangement is comprised in a mobile terminal of the cellular communications system.

24. An arrangement according to claim 22, characterized in that the arrangement is comprised in a base station of the cellular communications system.

25. A device for receiving a communications signal, the device comprising an arrangement according to any one of the claims 11 through 24.

26. A device according to claim 25, characterised in that the device further comprises a decoder adapted to receive an input signal from the arrangement indicative of the determined reliability value.

27. A device according to claim 25 or 26, characterised in that the device is a mobile terminal.